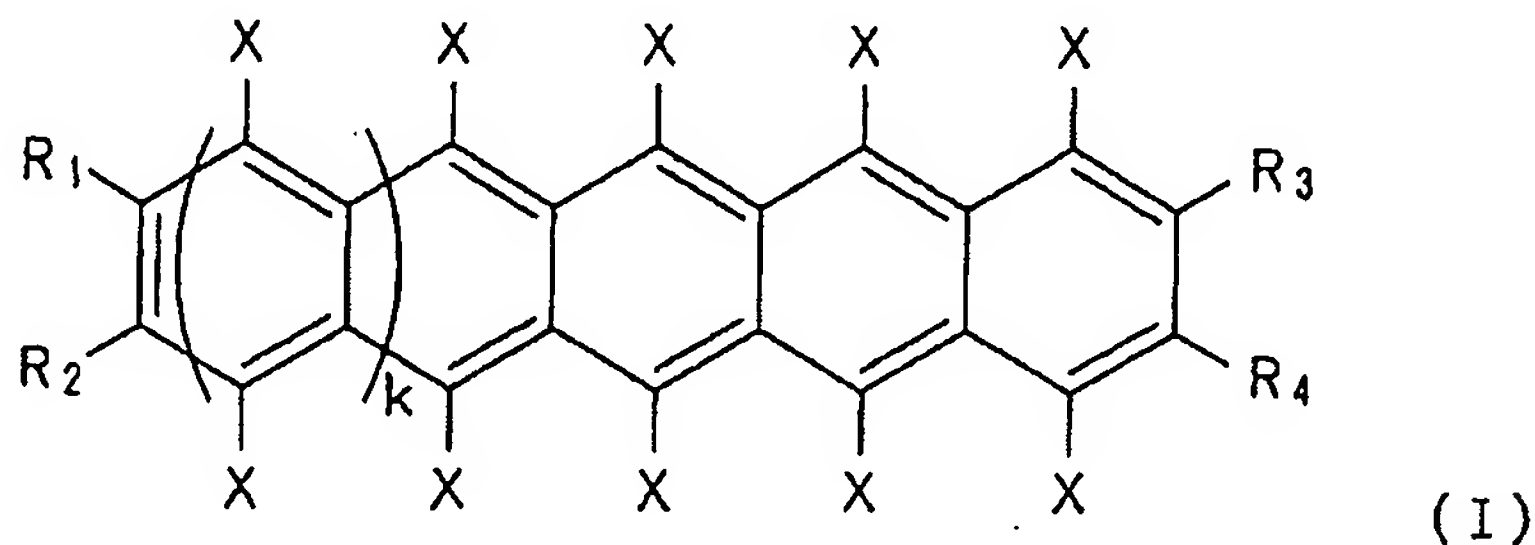


**AMENDMENTS TO THE CLAIMS**

1. (Previously presented) A polyacene compound having a structure represented by the chemical formula (I):



wherein at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  in the chemical formula (I) is/are an aliphatic hydrocarbon group (such as an alkyl group, alkenyl group or alkynyl group), aryl group, alkoxy group, aryloxy group, acyl group, ester group, alkyloxycarbonyl group, aryloxycarbonyl group, carboxyl group, formyl group, hydroxyl group, halogen group, amino group, imino group, amide group, cyano group, silyl group, mercapto group, sulfide group, disulfide group or sulfonyl group, or a functional group containing 2 or more groups thereof, and the other(s) is/are a hydrogen atom, some of Xs, that are two or more, are a halogen group and the other(s) is/are a hydrogen atom, and k is an integer of 1 to 5.

2. (Original) The polyacene compound according to claim 1, wherein  $R_3$  and  $R_4$  are each a hydrogen atom.

3. (Original) The polyacene compound according to claim 1, wherein at least one of the combinations ( $R_1$  and  $R_2$ ) and ( $R_3$  and  $R_4$ ) forms a cyclic structure, after  $R_1$  and  $R_2$  or  $R_3$  and  $R_4$  are bound to each other.

4. (Previously presented) The polyacene compound according to claim 1, wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  have 1 to 15 carbon atoms, when they are functional groups.

5. (Previously presented) The polyacene compound according to claim 1, wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  have 2 to 15 carbon atoms, when they are functional groups.

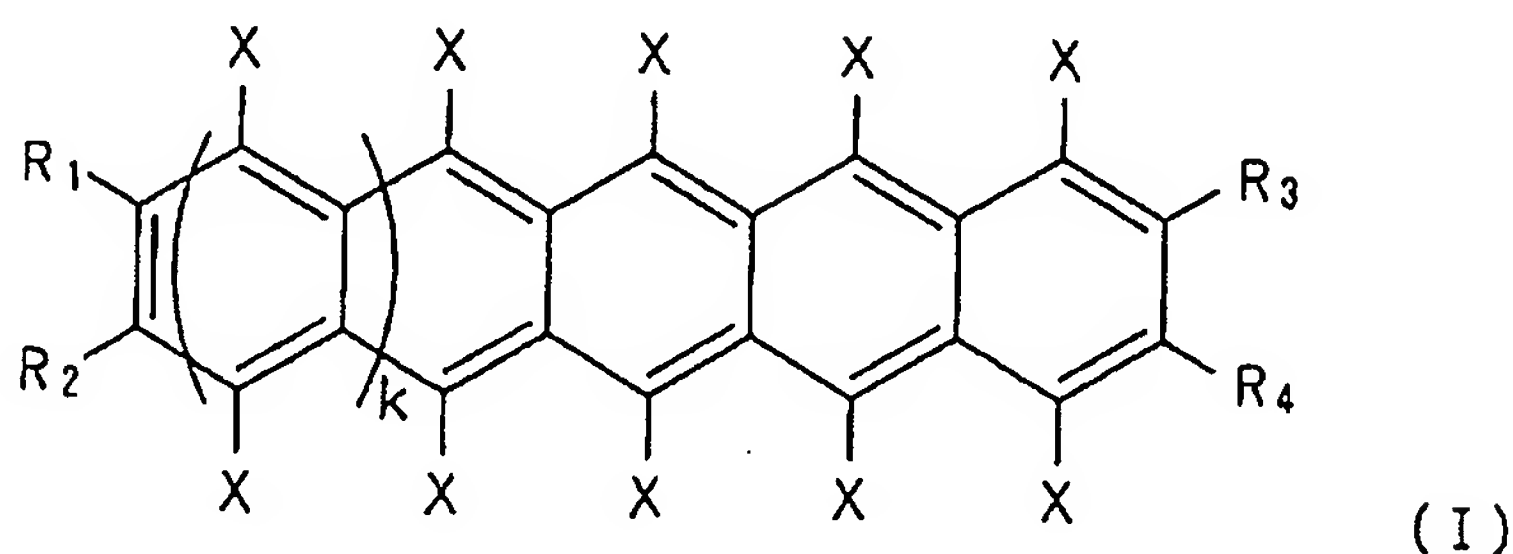
6. (Previously presented) The polyacene compound according to claim 1, wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  have 2 to 6 carbon atoms, when they are functional groups.

7. (Previously presented) The polyacene compound according to claim 1, wherein an even number of Xs are each a halogen group, at least 2 of which are bound to the same acene ring.

8. (Previously presented) The polyacene compound according to claim 1, wherein two of Xs are each a halogen group and bound to the same acene ring.

9. (Previously presented) The polyacene compound according to claim 1, wherein k is 1 or 2.

10. (Previously presented) An organic semiconductor thin film made of a polyacene compound having a structure represented by the chemical formula (I) and having crystallinity.



wherein at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is/are an aliphatic hydrocarbon group (such as an alkyl group, alkenyl group or alkynyl group), aryl group, alkoxy group, aryloxy group, acyl group, ester group, alkyloxycarbonyl group, aryloxycarbonyl group, carboxyl group, formyl group, hydroxyl group, halogen group, amino group, imino group, amide group, cyano group, silyl group, mercapto group, sulfide group, disulfide group or sulfonyl group, or a functional group containing 2 or more thereof, and the other(s) is/are a hydrogen atom; some of Xs is/are a halogen group and the other(s) is/are a hydrogen atom; and k is an integer of 1 to 5.

11. (Previously presented) The organic semiconductor thin film according to claim 10, wherein R<sub>3</sub> and R<sub>4</sub> are each a hydrogen atom.

12. (Previously presented) The organic semiconductor thin film according to claim 10, wherein at least one of the combinations (R<sub>1</sub> and R<sub>2</sub>) and (R<sub>3</sub> and R<sub>4</sub>) forms a cyclic structure, after R<sub>1</sub> and R<sub>2</sub> or R<sub>3</sub> and R<sub>4</sub> are bound to each other.

13. (Previously presented) The organic semiconductor thin film according to claim 10, wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  have 1 to 15 carbon atoms, when they are functional groups.

14. (Previously presented) The organic semiconductor thin film according to claim 10, wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  have 2 to 15 carbon atoms, when they are functional groups.

15. (Previously presented) The organic semiconductor thin film according to claim 10, wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  have 2 to 6 carbon atoms, when they are functional groups.

16. (Previously presented) The organic semiconductor thin film according to claim 10, wherein an even number of Xs are each a halogen group, at least two of which are bound to the same acene ring.

17. (Previously presented) The organic semiconductor thin film according to claim 10, wherein two of Xs are each a halogen group and bound to the same acene ring.

18. (Previously presented) The organic semiconductor thin film according to claim 10, wherein  $k$  is 1 or 2.

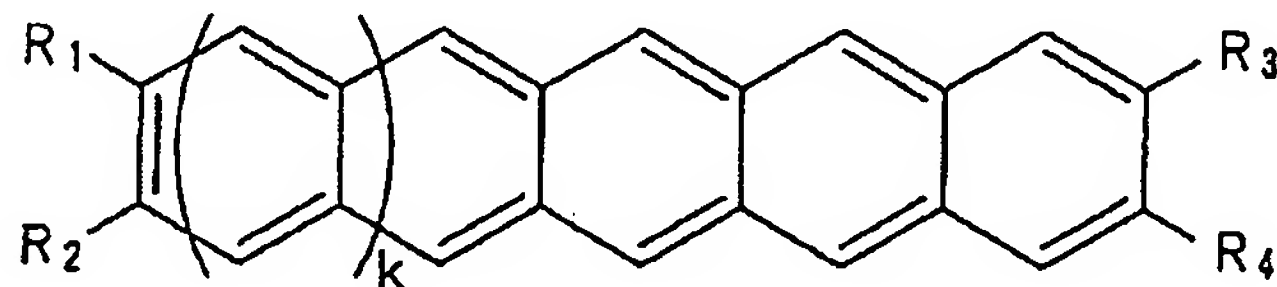
19. (Previously presented) The crystalline organic semiconductor thin film according to claim 10 formed on a substrate, wherein the major axis of the molecule of the polyacene compound is oriented toward a right angle to the substrate surface.

20. (Previously presented) An organic semiconductor device composed of the organic semiconductor thin film according to claim 10, at least partly.

21. (Previously presented) A transistor comprising a gate electrode, dielectric layer, source electrode, drain electrode and semiconductor layer, wherein the semiconductor layer is composed of the organic semiconductor thin film according to claim 10.

22-31. (Canceled)

32. (Previously presented) A hydroxypolyacene derivative having a chemical structure corresponding to that of the polyacene, represented by the chemical formula (IV), having the same number of 6-membered rings and the same  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$ , and having at least one carbon atom, except for the one to which  $R_1$ ,  $R_2$ ,  $R_3$  or  $R_4$  will be bound when it is converted into the polyacene, bound to a hydroxyl group or hydrogen atom,

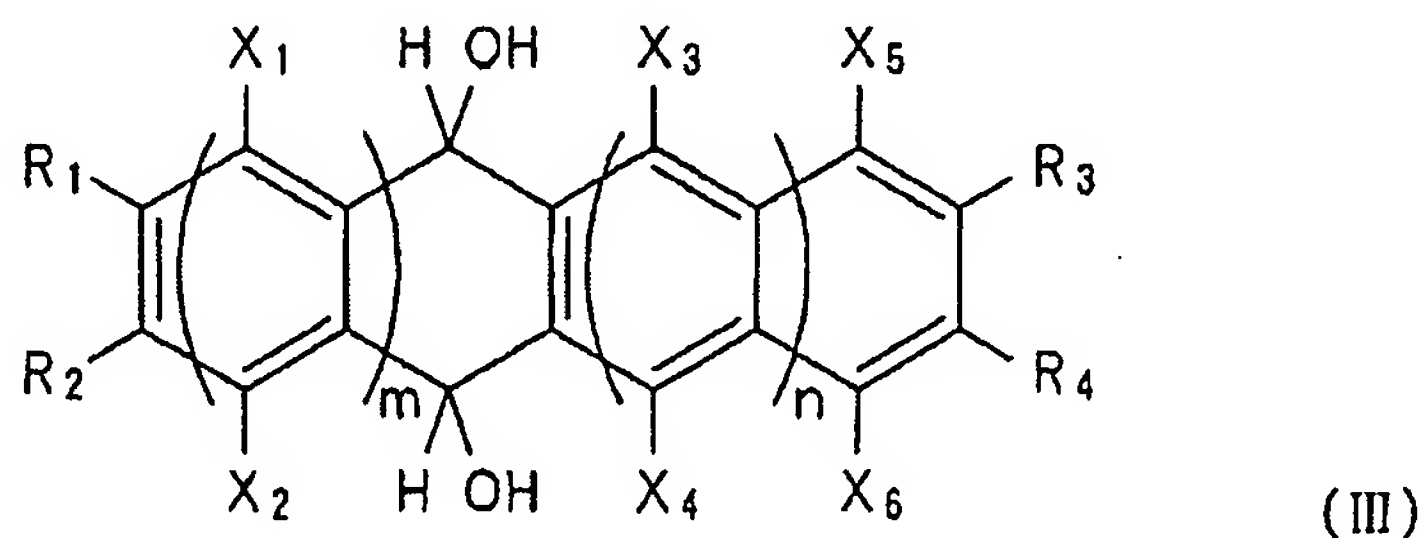


(IV)

wherein at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  in the chemical formula (IV) is/are an aliphatic hydrocarbon group (such as an alkyl group, alkenyl group or alkynyl group), aryl group, alkoxy group, aryloxy group, acyl group, ester group, alkyloxycarbonyl group, aryloxycarbonyl group,

carboxyl group, formyl group, hydroxyl group, halogen group, amino group, imino group, amide group, cyano group, silyl group, mercapto group, sulfide group, disulfide group or sulfonyl group; or a functional group containing 2 or more groups thereof, and the other(s) is/are a hydrogen atom; and k is an integer of 1 to 5.

33. **(Currently amended)** A hydroxypolyacene derivative, which is a precursor for synthesizing the polyacene compound according to claim 1, having a chemical structure represented by the chemical formula (III):



wherein at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> in the chemical formula (III) is/are an aliphatic hydrocarbon group (such as an alkyl group, alkenyl group or alkynyl group), aryl group, alkoxy group, aryloxy group, acyl group, ester group, alkyloxycarbonyl group, aryloxycarbonyl group, carboxyl group, formyl group, hydroxyl group, halogen group, amino group, imino group, amide group, cyano group, silyl group, mercapto group, sulfide group, disulfide group or sulfonyl group, or a functional group containing 2 or more groups thereof, and the other(s) is/are a hydrogen atom; X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub> and X<sub>6</sub> in the chemical formula (III) are each a halogen group

or hydrogen atom, unless all of  $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$ ,  $X_5$  and  $X_6$  are each a halogen group; and  $m$  is an integer of 2 or more, and  $m+n$  is an integer of 3 to 7.

34. (Previously presented) A display device provided with pixel planes each composed of a number of pixels, wherein each of the pixels is provided with the organic semiconductor device according to claim 20 or transistor according to claim 21.

35. (Previously presented) The display device according to claim 34, wherein an electrode, dielectric layer and semiconductor layer are formed in the organic semiconductor device or transistor by printing or coating a liquid.